

The Meson Test Beam Facility

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- ◆ User area layout
- ◆ Operational Characteristics
- ◆ Current test beam MOU's
- ◆ Delivering MI beam to MTBF
- ◆ Status

Meson Test Beam Facility



Introduction

The Meson Test Beam Facility is a versatile beamline in which users can test equipment or detectors in a beam of moderate energy particles (5-120 GeV) at moderate intensities (<1 MHz). Beamtime is available to qualified users as discussed below.

Beamline and experimental area details

Information for test beam users

Meson Test Beam Facility MOU's

Beam Time Schedule (draft)

Meetings

Pictures

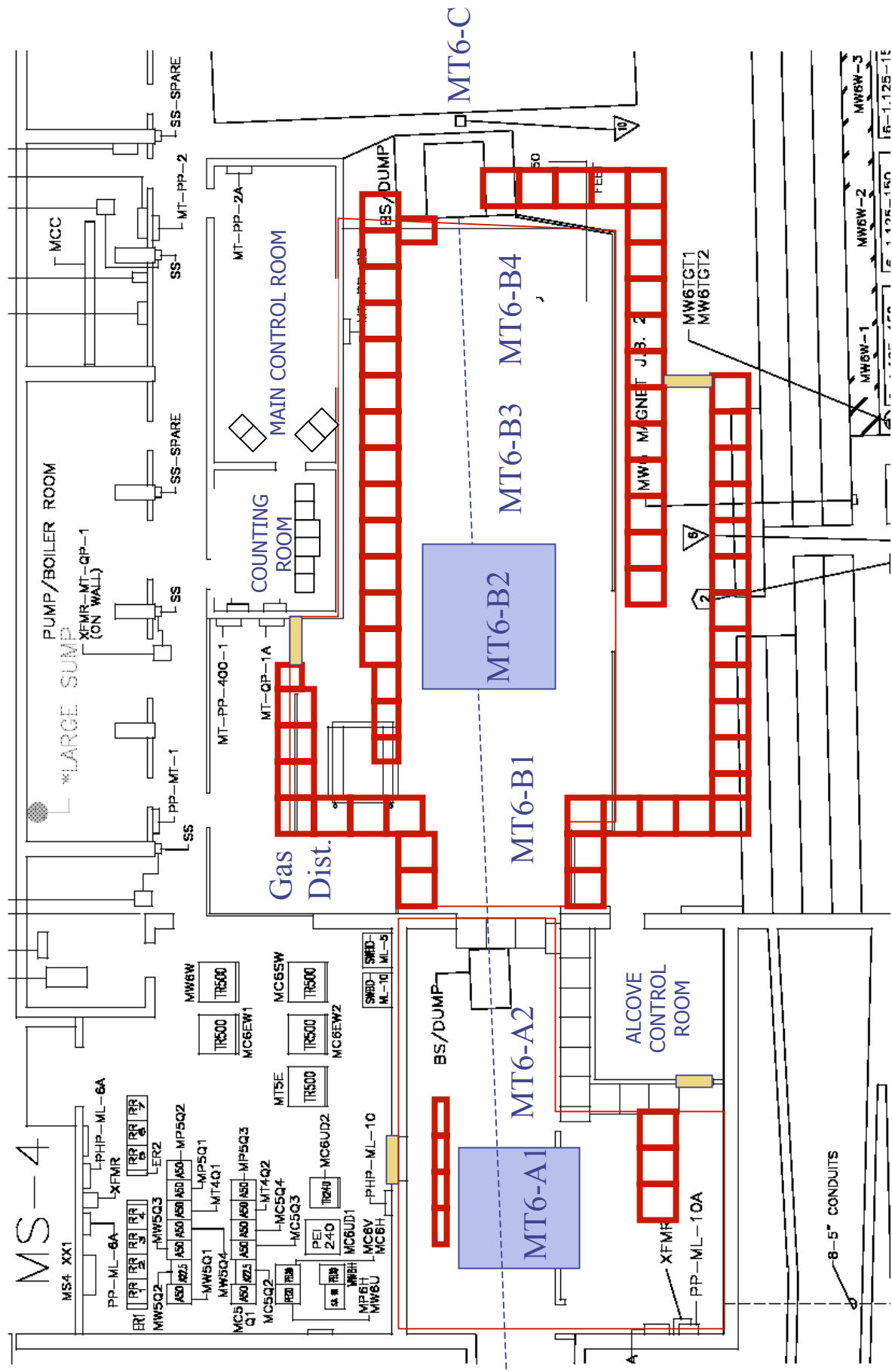
Security, Privacy, Legal

Last Updated: 11/01/2001

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Web page for MTBF:
www-ppd.fnal.gov/MTBF-w, or
Fermilab-at-Work → MTBF

MT6 Test Beam User Areas



= Concrete

■ = Enclosed climate control areas



= Controlled access gate

Operational Characteristics

- ◆ There will be two operational modes:
 - **Proton Mode:** We will tune all bend magnets for 120 GeV. To reduce flux in user areas, we have to turn off focusing quadrupoles and insert pinhole collimator. Rates will be on the order of .7 MHz.
 - **Secondary, or 'Pion' Mode:** We will vary tune of bend magnets according to momentum needed. Quads will be in focusing mode and pinhole collimator will be out. Maximum tune will be 80 GeV. Rates will be on the order of 50 kHz and lower. Lowest momentum tune is on the order of 3-5 GeV.
- ◆ Beamline has secondary targets and sweepers to tune for electrons, but lore indicates that better electron flux can be had by just tuning for low momentum and using particle i.d.
- ◆ Beamstop between MT6A and MT6B can filter for muons in the second user area. An upstream beam stop can be used to select for muons in both areas.
- ◆ Spot sizes can probably be made as small as 3-5 mm square

Facility Detectors

- ◆ Two beamline threshold Cerenkov counters can be operated independently for good particle i.d. (50' and 80')
- ◆ Two stations of X,Y silicon strip detectors will be installed.
- ◆ 1 mm pitch MWPC into DAQ, three 2 mm pitch MWPC used as SWICS.
- ◆ DAQ will read out scintillators, Cerenkov counters, silicon and MWPC per spill, with event number tag, and this data will be accessible to experimenters.





T926: Radio Ice Cerenkov Experiment



T927: BTeV Pixel Test



List of MTBF Memoranda of Understanding (MOU):

T926: RICE Signed

T927: BTeV Pixel Signed

T930: BTeV Straw Pending

T931: BTeV Muon Pending

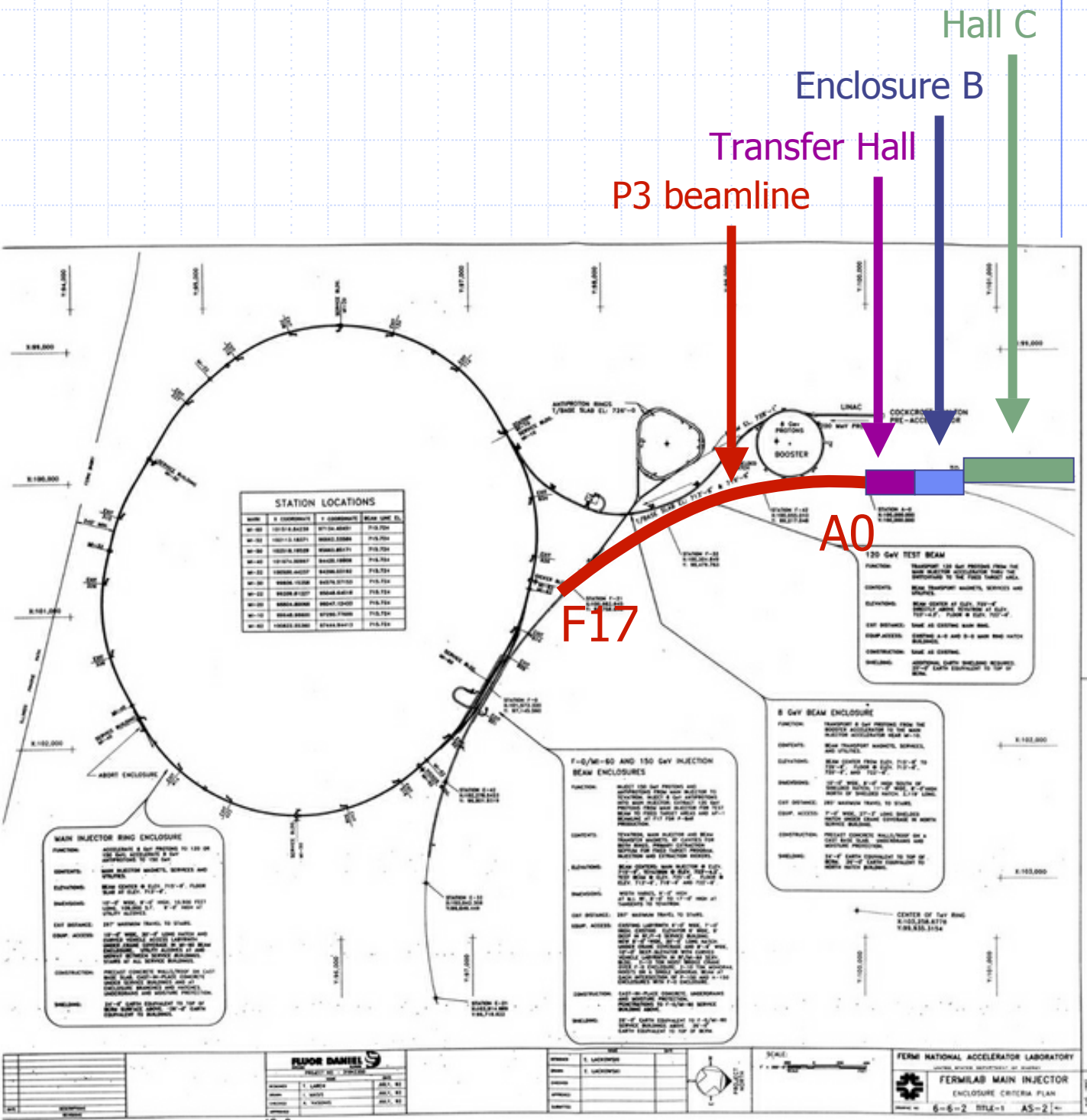
T932: Diamond Detector Pending

T933: BTeV ECAL In Review

Txxx: BTeV RICH In Review

Experiments planned :

- CKM straws (Summer, 2003)
- BTeV straws (Summer, 2003)
- CKM Cerenkov (Spring, 2004?)
- Nebraska/NASA cell biology (2004?)
- Linear Collider detectors (2004-5?)
- ... many other verbal contacts



Delivering MI Beam
to Mtest – 2.5 km 'beamline'

Status

- ◆ Currently, all beamline elements have been installed in Enclosure B, Hall C, and MTest line. Instrumentation is adequate to begin delivery of beam to Switchyard dump and then to MTBF.
- ◆ Safety and shielding documentation for the MI120 project is written and has been under extensive review. This covers all enclosures from P3 down to MT6.
- ◆ Next step after safety approvals is to test P3 power supplies with Tevatron running. If this does not affect Tevatron operations, then we are essentially ready for beam.
- ◆ Begin with fast extraction, followed in a few weeks by poor quality resonant extraction.
- ◆ A second Main Injector QXR quadrupole will be installed during the summer shutdown to enhance slow spill quality.